Universiti Utara Malaysia

THE INFLUENCE OF ECONOMIC INDICATORS ON INTERNATIONAL

MIGRANTS IN MALAYSIA

By

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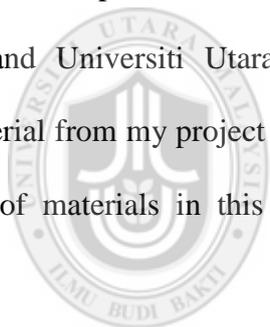
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ABSTRACT

This study examines the influence of economic indicators on international migrants in Malaysia.The problem statement discuss a huge number of international migrants in Malaysia leads to the middle income status problem as too much dependency on low-skilled migrants. According to the New Economic Model, Malaysian sectors are enormously hiring international migrants. These international migrants are holding status as low-skilled and too much of dependency of local sectors on international migrants (low-skilled). The Fixed Effects and Random Effects Models approach had used to check the influence among the variables. The empirical analysis confirms that unemployment rate, HDI, real GDP, private consumption and total population have positive relationship on international migrants in Malaysia. Meanwhile migrant stock and real interest rate have negative relationship on international migration. Lastly there is no significant relationship between inflation rate and international migrants. The study concluded the economic indicators leads international migrants in Malaysia and reduction in international migrants (low-skilled) especially in manufacturing will help Malaysia to achieve high-level income country.

Keywords: International Migrants, Real GDP, Interest Rate, Unemployment Rate, Private Consumption, Inflation Rate, Migrant Stock, HDI and Panel Data Model
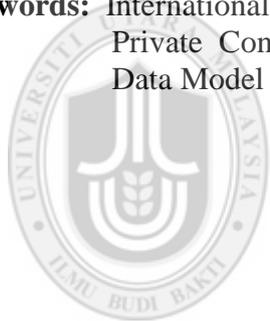
ABSTRAK

Kajian ini bertujuan untuk mengkaji pengaruh beberapa indikator economi terhadap pendatang asing yang sampai di Malaysia. Kajian membincangkan tentang masalah yang dihadapi oleh negara Malaysia akibat daripada jumlah migrasi antarabangsa di Malaysia sejak tahun 1960-an. Antara masalah yang telah dikemukakan ialah seperti "middle income trap". Rancangan Malaysia ke 10 telah membentangkan beberapa agenda penting termasuk strategik untuk memperkukuhkan kedudukan ekonomi negara Malaysia. Manakala "New Economic Model" telah menyampaikan pendapat tentang masalah yang akan dihadapi oleh negara Malaysia jikalau negara kita meneruskan pengambilan perkerja asing terutamanya dalam sector pembinaan, perkilangan dan sebagainya. Malaysia dikenali sebagai antara negara yang sedang membangun dengan pesat berbanding dengan negara jiran yang lain, tahap kebergantungan yang tinggi terhadap pendatang asing akan membebankan untuk menjalankan aktiviti perniagaan and perdagangan dengan negara yang berpendapatan tinggi dan rendah. Kebanyakkan pendatang asing yang berkerja di negara ini memilikki tahap keberbolehan yang sederhana and rendah (low and semi-skilled). Kajian ini berusha untuk menggunakan beberapa indikator ekonomi untuk mendapatkan penjelasan terhadap faktor yang membawa migrasi antarabangsa di Malaysia. Selain daripada itu, kajian telah dijalankan dengan menggunakan kaedah Fixed Effects and Random Effects untuk menganalisis pengaruh indikator ekonomi terhadap migrasi antarabangsa di Malaysia. Selepas itu, hasil kajian menyatakan bahawa pembolehubah seperti unemployment rate, HDI, real GDP, private consumption dan total population mempunyai hubungan yang signifikan terhadap migrasi antarabangsa. Akhir sekali, kajian menyatakan bahawa tiada hubungan yang signifikan antara inflation rate dan migrasi antarabangsa. Secara keseluruhan kajian menyatakan bahawa indikator ekonomi daripada negara membawa kepada process migrasi.

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(815124)

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LIST OF ABBREVIATIONS

3D	Dirty, Dangerous and Demeaning
ASEAN	Association of Southeast Asian Nations
ECLAC	Economic Commission for Latin America and the Caribbean
EPU	Economic Planning Unit
EU	European Union
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
HDI	Human Development Index
ILO	International Labour Organization
KNOMAD	Knowledge Partnership on Migration and Development
MOHA	Ministry of Home Affairs
NELM	New Economic Labour Migration
NEM	New Economic Model
OECD	Organisation for Economic Co-operation and Development
UAE	United Arab Emirates
WBG	World Bank Group

CHAPTER 1

INTRODUCTION

1.1   Introduction

International migration is the process of leaving the origin country for another country by potential migrants (United Nation Statistical Commission, 2001). In 2013, it was estimated that more than 230 million people were residing outside their origin countries (United Nations, 2015). Usually these potential migrants would migrate to countries that are financially beneficial to them. When this takes place, the destination countries would end up becoming more productive while the origin countries become less productive. Furthermore, an increase in the number of international migrants is expected to have several economic implications for the destination countries such as to increase the fiscal burden to care for the growing population brought about by the immigrants and to increase job competition, which would bring down the wages for the locals. According to Borjas (2003), international migration reduces the average wages of the natives by three to four per cent.

Generally it could be stated that international migration has a positive implication on the income of the destination countries by promoting the performance of their local sectors. Furthermore it helps sectors such as financial services and enhances small scale businesses and investments. In addition, international migration contributes to economic development of the origin countries through the transfer of money (remittances) from the immigrants to their family members in the origin countries. The remittances can help improve the welfare of the family members through an improvement in health, education, information, communication, and technology of the

people in the origin countries. In this respect, it could be argued that international migration is useful for both the origin and destination countries.

It should be noted that there are advantages and disadvantages of international migration for both the origin and destination countries. Hence, these countries would implement the migration policies or programs that are expected to serve their interests. For example, it is advantageous for the destination countries to relax the restrictions on the international immigrants if doing so helps the local sectors to hire more of them to produce more outputs through their participation in, say, the dirty, dangerous and demeaning (3D) jobs. It is disadvantageous for the destination countries to impose the restrictions on the international immigrants if doing so reduces the productivity of the local sectors, gives rise to illegal immigrants, and promotes the rise of social problems.

The World Bank Group (WBG) recognizes the connection between migration and development. Thus, WBG is expanding its involvement whereby it has been building partnership and strengthening cooperation with the Global Knowledge Partnership on Migration and Development (KNOMAD). The purpose of their collaboration is to generate and synthesize knowledge with regards to international migration by crafting a list of migration policies that is based on multidisciplinary knowledge and providing technical assistance for both the origin and destination countries.

Besides WBG-KNOMAD, there are other organizations like the International Labour Organization (ILO) and the World Bank (WB) which are aware of this matter and have been working towards reducing international migration. This initiative has been taken due to the increase in the number of international migrants each year. In 2010, for example, there were 214 million migrants globally (World Bank, 2011); by 2014,

the number has risen to 232 million (ILO, 2014). As far as the Asian countries are concerned, the issue of international migration has been dealt with since the 1980s. As for Malaysia, it has been receiving foreign workers continuously from the 1980s due to several international agreements it had entered with the neighbouring countries like Indonesia and the Philippines. As a result of this ongoing process, Malaysia recorded a total of 2.47 million registered international migrants in 2013 (Central Bank of Malaysia, 2013).

The objective of this paper is to examine the influence of selected push factors (namely, the economic indicators) on international migration in Malaysia since 1960. Accordingly, the dependent variable is the number of international migrants in Malaysia while the independent variables are the real gross domestic product (GDP), unemployment rate, private consumption, migrant stock, interest rate, inflation rate, total population and human development index (HDI) of the origin countries. The origin countries are essentially the selected labour exporters for Malaysia, consisting of the six ASEAN countries (such as Indonesia, Thailand, Myanmar, Cambodia, Vietnam, and the Philippines) and the four South Asian countries (such as India, Bangladesh, Sri Lanka and Nepal).

Previous studies used numerous migration theories (such as the Neo-classical Economics, Keynesian Economics, New Economics of Labour Migration, Network Theory, Classical Theory, Malthus's Total Population Theory and Human Development Index) to examine the impact of the above factors on international migration. This study shall do the same for Malaysia.

1.2   International Migrants in Malaysia

This subchapter will generally elaborate on matters like labour exporting countries, trend of international migrant arrivals, international migrant involvements in the local sectors and their duration of stay in the destination countries.

1.2.1   Foreign Workers in Malaysia in the period 1999–2008

Figure 1.1 illustrates the percentage of migrants from various countries who reside in Malaysia. The chart below specifically shows the percentage of international migrants from the neighbouring countries like Indonesia, Bangladesh, Thailand, the Philippines, etc. from 1999 to 2008. During the period, Indonesia produced the largest number of migrants compared to the other neighbouring countries. Specifically, nearly 50% of the foreign workers hired by Malaysia came from Indonesia, followed by those from Bangladesh (less than 30%), and those from Thailand and the Philippines (less than 10%). One of the main reasons for a disproportionately large percentage of the Indonesian immigrants is proximity. Malaysia is the nearest country to Indonesia as compared to the rest of the migrant countries, and this makes Malaysia an attractive destination country for the potential Indonesian migrants. The shorter distance also reduces the travelling cost, thus making it affordable as compared to any other destination country with a stable economy. It has been reported that the Indonesian migrants have populated the construction sectors in Malaysia. Although the graph shows a downward trend in the number of Indonesian migrants over the years, it is to be noted that the reduced amount is a slight one, thus the Indonesian migrants are indeed still on the top of list of migrants in Malaysia.
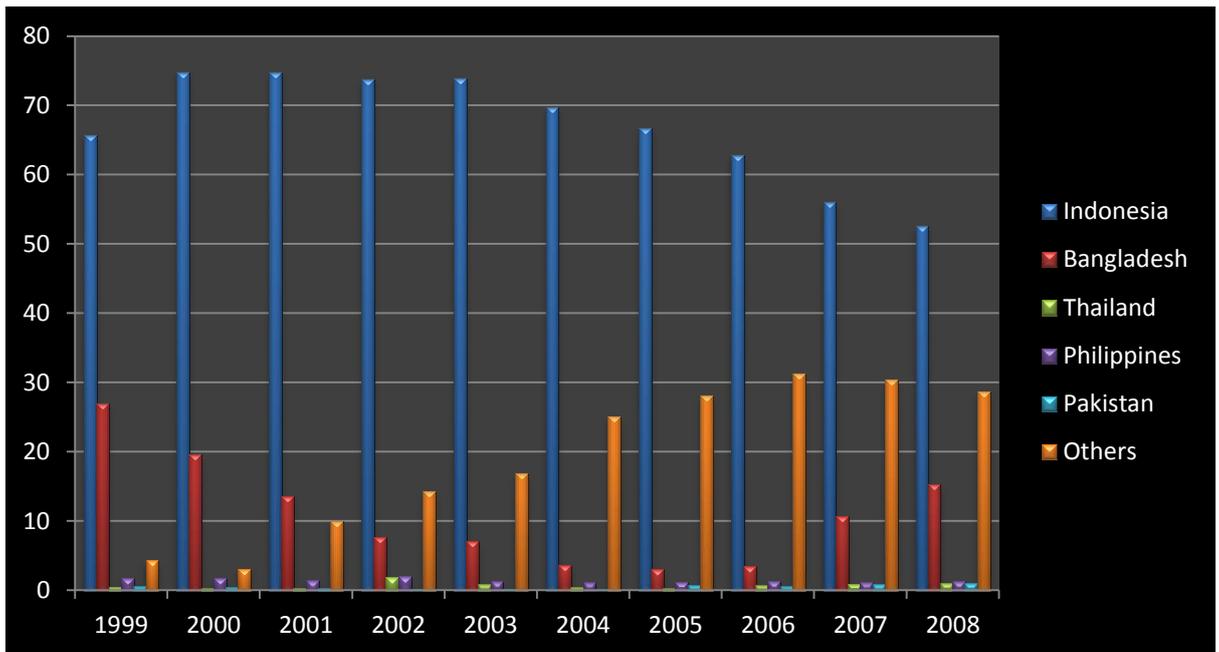
Figure 1.1
Foreign Workers in Malaysia in the period 1999–2008 (%workers)
Source: Ministry of Home Affairs, 2010

1.2.2 Unskilled Foreign Workers by Sectors in the period 2007–2010

Figure 1.2 illustrates the total number of unskilled foreign workers by sectors within the period of 2007 and 2010. International migrants in Malaysia engaged in a few local sectors like manufacturing, construction, agriculture and service. Manufacturing appears to be the main sector as it hired more than 600,000 unskilled foreign workers and contributed RM152 million in 2009. This amount then increased to RM170 million in 2010 (Central Bank of Malaysia, 2013). Unskilled foreign workers worked in sectors like agriculture and service due to the lack of Malaysian manpower to venture into these sectors, with lack of interest being one of the reasons for the shortage. Sectors like construction hired 69% of labour force from abroad and generated RM19 million in 2009 (Central Bank of Malaysia, 2013). Malaysian local sectors have been operating well with the arrival of international migrants.

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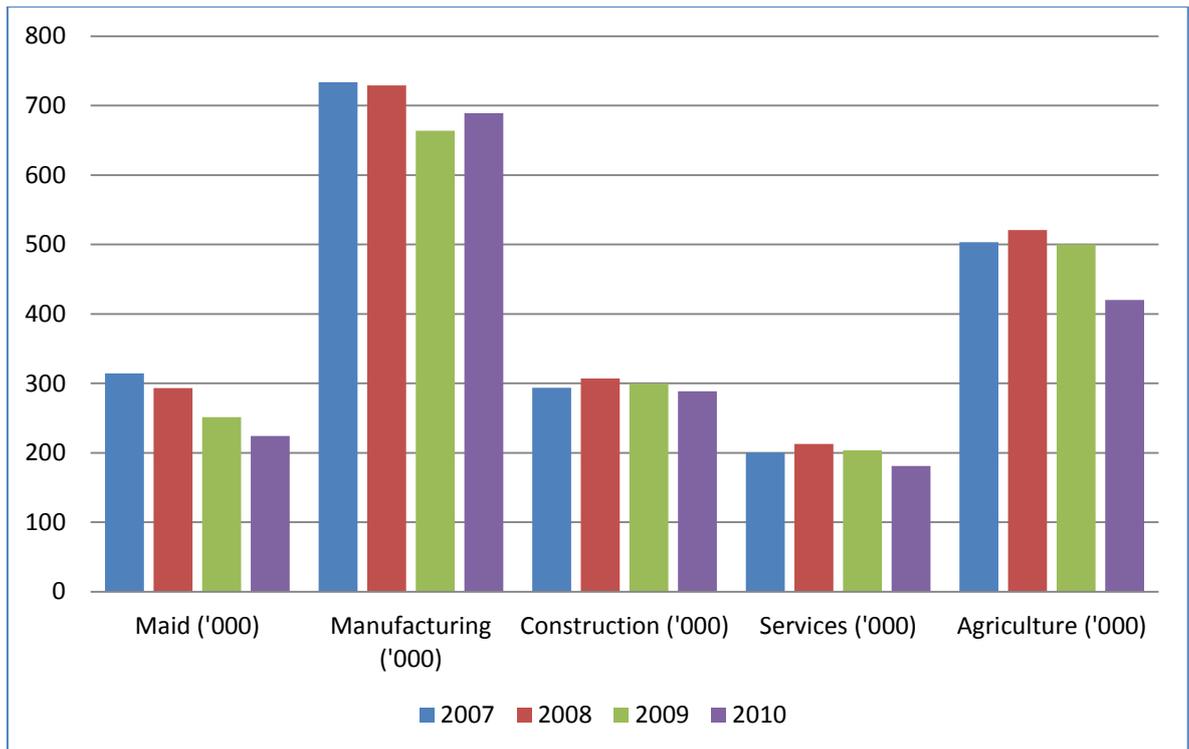
Figure 1.2
Unskilled Foreign Workers by Sectors in the period 2007–2010 ('000 workers)
Source: Ministry of Home Affairs, 2010

1.3   Problem Statement

Malaysia is one of the developing countries with a relatively small population in Asia. Usually, a developing country expands its business and trade agreement with other countries to improve its own economic performance. There was a time, in particular during the 1990s, when Malaysia faced labour shortages and allowed local sectors like agriculture, manufacturing and construction to hire international manpower. During the period, the Malaysian people were not showing interest with the 3D jobs, thus forcing the government to take international labourers. This led Malaysia to become an important labour importer.

According to the New York Times (NYT, 2014), the Malaysian economy has developed since the last 25 years and Malaysia has received a large scale of international migrants from the poorer countries surrounding it. Moreover, NYT

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(2014) stated that there were approximately 2.5 million international migrants in Malaysia and a labour research organization (Verité) stated that about 200,000 international migrants are participating in the Malaysian manufacturing sector.

The arrival of international migrants from the beginning of the 1960s has proved both its advantages and disadvantages with regard to the economy of Malaysia. One of the advantages of having international migrants is that the Malaysian economy has improved for the past three decades, as the arrival of these migrants has helped to overcome the labour shortage problem in the local sectors mainly the ones that deal with the 3D jobs. Despite this advantage, international migrants contribute to several problems such as increasing the crime rates, social problems, illegal migrants, etc. Malaysia has been working with IOM (International Organisations for Migration) and other government organizations such as the Economic Planning Unit and the Prime Minister's Department to overcome international migration issues.

The Malaysian government has introduced plans like the Malaysia Plans (MPs) to develop Malaysian economies strategically. One of the MPs is the 10th Malaysia Plan, which aimed to improve the Malaysian economy from various angles by introducing the New Economic Model (NEM) (10th MPs 2011-2015). The central focus of the NEM is to transform the status of Malaysia from middle-income country to a high-income country. It is definitely not an easy task to achieve the high-income level. Tran Van Tho (2013) stated that an upper-middle income country needs approximately 15 years to attain a high-income status if the average annual growth rate is five percent. According to Spence (2011), although the average annual growth rate of five per cent looks achievable for many countries, it has been proven to be difficult.

A situation like this, where a middle income country encounters low growth for a long term, is referred to as the middle-income trap. Firstly, a country transforms from an agricultural to an industrial economy. At this time the contribution of the manufacturing and service sectors in total output and employment will increase. Secondly, when a country reaches the middle-income stage, there will be challenges to achieve the high-income status. Hence a country must overcome challenges like structural and technologies transformations. The most important point at this stage is that the quality of labour must be upgraded from low skills to high skills. If the quality of labour improves, industrial transformation will take place from low-skilled intensive industries to high-skilled intensive industries so that the country will attain a high income status.

According to the NEM, a majority of sectors in Malaysia depend on foreign labours, especially those that hire low-skilled labours. Basically these sectors prefer to hire the low-skilled international workers because these workers are willing to work in any circumstances such as palm oil plantations, construction, etc. The NEM stated that the presence of international migrants has some implications on the Malaysian economy. In particular, the Malaysian economy will be badly affected in the long run if the local sectors continue to hire low-skilled migrants. This is because the low-skilled labour is not able to work with high-technology equipment; as a result, the resulting output is of low quality which then disables the local sectors from competing with the international competitors in the market. This implies that too much dependency on the low-skilled international migrants in the local sectors leads to the phenomenon of middle income trap. The NEM also stated that policy makers and analysts argue on wage issues.

The large number of low-skilled international migrants causes a decrease in wages and pushes the economy into the low-skilled, low-wage equilibrium. Hence, it is suggested that the local sectors hire international migrants who possess either semi or high skills. In addition, the local sectors are advised to move toward the application of high technologies in production. It is hoped that a combination of technologies and skilled workers is capable of developing the Malaysian economy to become a high-income country in the future.

1.4   Objective of the study

The main objective of the study is to analyse the influence of economic indicators of selected ASEAN and South Asian countries on international migration in Malaysia. In particular, this study aims to examine the relationship between international migration in Malaysia and its potential determinants such as real GDP, unemployment rate, private consumption, migrant stock, inflation rate, interest rate, total population and HDI.

1.5   Theoretical background

This section presents the theoretical framework of international migration from the aspect of international migration and related economic theories. Variables in Figure 1.3 are related to the mentioned theories and the following discussion includes the empirical review of economic indicators on international migration.

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Figure 1.3
Variables Diagram
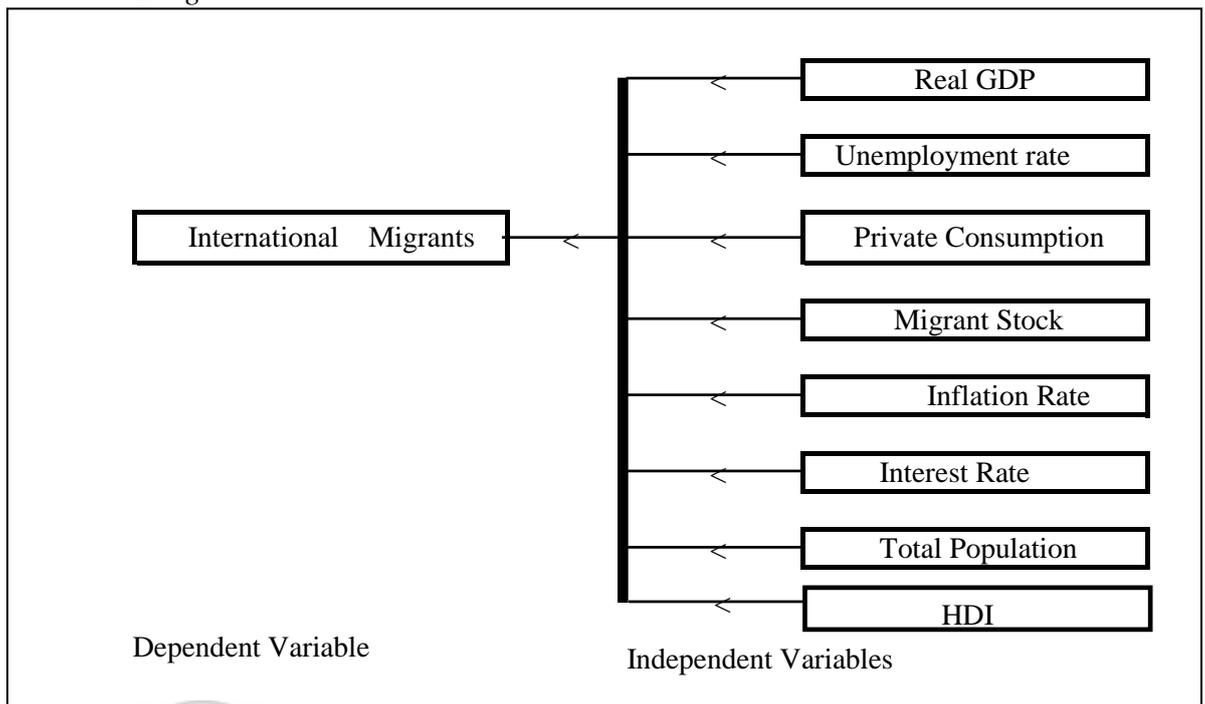
The theoretical framework explains the relevant theories of migration phenomena. According to Simon and Goes (2011), the theoretical framework delivers a well-supported rationale to conduct a study and help readers to understand one's perspective. There are a few theories which explain international migration such as the Neo-classical Economic Theory, Keynesian Economic Theory, New Economics of Labour Migration Theory, Migrant Network Theory, Classical Theory of Inflation and Malthusian Theory.

The discussion will start off with the Neo-classical Economic Theory. This theory states that the international labour flows occur as a consequence of wage differences between the origin and destination countries. For example, consider a scenario between an origin and destination country where the labour-exporting (-importing) country has a negative (positive) effect on net international migration. The wage difference between two countries would force the low-skilled labour to migrate to a

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country that offers a higher wage. Borjas (1989) stated that a country with a labour shortage relative to capital has a high equilibrium wage while a country with a relatively high labour supply has a low equilibrium wage. The wage difference causes labour to move from a low-wage to a high-wage country. The international migration literature has used economic indicators like GDP and real GDP in order to expand the knowledge. This paper will use the real GDP of the origin countries to examine its impact on international migration in Malaysia.

The Keynesian Economic Theory is critical of the neoclassical view on international migration. As the Keynesian Economic states that labour supply is dependent on the nominal wage and not on the real wage. However the latter theory of the Keynesian Economic states that money is solely a medium of exchange. The Keynesian view differs from the neoclassical view in the sense that money is not only a medium of exchange but also a medium of saving. In the Keynesian theory, international migration is a mechanism which is used to recover the equilibrium because it removes the unemployment differences rather than the real wage differences. Sjaastad (1962) stated that the purpose of international migration is higher earning since potential labours were willing to move to a place that offers a good salary. This study will use unemployment rate to examine its impact on international migration in Malaysia.

The third theory is the New Economics of Labour Migration (NELM). According to the NELM, the propensity to migrate increases whenever the economic activity of the origin country and the consumption possibilities of household decreases. The NELM theory also states that the reduction in household income leads to a reduction in private consumption. Potential labour will decide to migrate whenever the level of private consumption decreases in the origin country. Previous empirical analyses use

private consumption as a monetary proxy for economic or material welfare of the households. Semyonov (2005) studied the international migration issues in the Philippines and found that international migration has a significant relationship with private consumption in the Philippines. This study will also use private consumption to examine its impact on international migration in Malaysia.

Next is the Migrant Network Theory. This theory explains how a large stock of the migrant population in the destination country forms a network with some potential migrants in the origin country. This network starts to function once migrants in the host country help upcoming migrants from the same state or native through financial aids and job market information. This paper will use the data on migrant stock from the origin countries to examine its influence on international migration in Malaysia.

Next is the Classical Theory of Inflation. This theory states that money is considered a symbol of wealth and when people utilize money for consumption of goods and services, money serves a medium of exchange. Furthermore, the Neoclassical Economic Theory explains that, if an origin country has a higher level of inflation rate, the labourers will expect the real wage to decline and this leads them to migrate. Moreover, the NELM theory mentions that migration happens for a reason, such as to improve financial stability, so that households are able to consume goods and services. This study will use inflation rate to examine its influence on international migration in Malaysia.

Besides the inflation rate, the Classical Theory of Inflation also considers the interest rate as a determinant of international migration. The role of interest rate in an economy is very important to boost a nation's economic activity. The Fisher equation states that the real interest rate is approximately the nominal interest rate minus the

inflation rate. In a simple context, the highest level of real interest rate is good for saver (banks / financial institutions) and bad for borrowers. Whenever the real interest rate is high in a particular country, the opportunity cost of borrowing money from the local banks or financial institutions is also high. This leads the potential borrowers to migrate. This paper will use the interest rates of the origin countries to examine their influence on international migration in Malaysia.

Next is the Malthusian Theory of Population. This theory states that human population grows at the exponential rate but food production grows at the arithmetic rate. This rapid growth of human population plus a slow growth of food production will lead to insufficient resource in the future. Malthus suggested that the population growth be controlled in order to avoid catastrophe. In this study the selected 10 countries are well-known as the ones with high levels of population. This paper will use this variable to examine the relationship between total population and international migration in Malaysia. Finally international migration studies used HDI as a determinant of international migration. HDI is a composite statistic of lifespan, education and per capita income. According to Fan (1999,) the level of education is important for international migration because occupation in Guangdong, China is decided by the level of education. This study will use HDI to examine its influence on international migration in Malaysia.

1.6   Significance of the study

The purpose of this study is to examine the influence of economic indicators on international migration in Malaysia. In Malaysia, there are only a few studies regarding international migration (eg, Rahman, Wang, Wood and Low, 2012; Syed Abdul Razak, 2014). Previous studies focused mainly on international migration from

a country like Indonesia and the effect on the local sectors like construction and agriculture in Malaysia while this study will include economic indicators as mentioned in the previous subchapters i.e. real GDP, unemployment rate, private consumption, migrant stock, inflation rate, interest rate, total population and HDI. This study will define the perceived economic indicators like real GDP, unemployment rate, private consumption, migrant stock and etc that can be used to measure the relationship between economic indicators and international migration in Malaysia.

Thus the findings of this study will contribute to the knowledge of international migration in Malaysia. According to Bank Negara Malaysia and New Economic Model, Malaysia is receiving a large number of international migrants from various countries on a continuous basis. By focusing only on ten countries with selected economic indicators we will know whether they influence international migrants' arrival in Malaysia. If there is no positive relationship between economic indicators and international migrants in Malaysia, it means that the economic indicators have no effective influence on international migrants in Malaysia. If there is positive relationship between economic indicators and international migrants in Malaysia, we will be able to recognize which economic indicators play a role in international migration. This study will significantly increase the awareness of society regarding the international migration phenomena in Malaysia.

Moreover the knowledge regarding the economic determinants and how these economic indicators play a role in the origin country which leads to international migration and ends in the host country will then be expanded. Surveys that were done by the New York Times and Virte show that the potential migrants leave the origin country because of the need to support their family members financially. They also

suggested that the policies or initiatives such as quality international migrants and flexible work arrangements benefits should be provided by the organization to retain international migrants in the local sectors. Therefore, international migrants can fully participate in the labour market and contribute to economic growth.

Hopefully, the related data providers will be able to arrange some facilities that will be more effective to study the international migration in Malaysia. By providing the facilities that are needed by the students and researchers, it can help policy makers from the findings about international migration in Malaysia. The study will yield valuable results due to its multi-country analysis and will be advantageous to other students, researchers and policy makers who will also be able to study in detail regarding the international migration phenomena. Finally, the utmost benefit will be gained through a migration study in Malaysia, as better economic determinants can be identified. The basic knowledge of migration in Malaysia will be extended to higher levels. The proposed economic indicators will be able to guide the students to understand this issue in detail and help policy makers as mentioned above. Knowledge regarding the economic determinants will explain more on how these economic indicators play a role in the origin country and trigger international migration to the host country.

CHAPTER 2

LITERATURE REVIEW

2.1   Introduction

In order to study the international migration flows from the selected 10 countries, an empirical review is need to give further information and justification regarding the arrival of international migrants in Malaysia during the period of 1960-2010. This chapter comprises the empirical review of international migration from the perspective of economic theories. Furthermore it includes the empirical review of studies regarding international migration in the European, Asian and African countries. This study focuses on the push factors that arise from the origin countries.

2.2   Empirical Reviews

The empirical review is divided into eight sections, namely, GDP, unemployment rate, private consumption, migrant stock, inflation rate, interest rate, total population and HDI, all of which are discussed below.

2.2.1   GDP

There are a number of studies with regards to international migration from different aspects and areas. Some of the studies examined the factors and effects of international migration in certain countries based on several economic aspects. Jennissen (2003) studied the influence of economic indicators on net international migration based on the Western European countries during the period 1960-1998. The result shows that GDP per capita has a positive relationship with international migration, while unemployment has a negative relationship with international migration for the Western European countries. Besides that the analysis indicates that

the difference in GDP per capita between a sending and a receiving country for Finland and the Irish Republic has a positive effect on net international migration in the sending countries. Zimmerman and Zaiceva (2008) studied the relationship between international migration and variables such as GDP, Gini index and years of schooling of European Union 10 and European Union 15. Their findings indicated that the GDP performance of an origin country was influencing the locals or potential labourers in the decision making process to migrate. Prada (2014) studied migration rate on 26 European countries from 1996 to 2011. The author suggested that the international migrant stock helps to increase the GDP performance in the destination countries.

Hussey (2007) studied international migration patterns of physicians in the United States. The article examined the patterns of migration among the physicians from other countries to the U.S. from 1994 until 2004. The author modelled a log-linear model of physician immigration in the U.S. with generalized estimating equations. The author used a few variables such as the number of physicians, GDP per capita, trade volume, immigrant networks, distance, political rights, the absence of medical schools and the language of medical school instruction. The results indicated that physician migration has a significant relationship with the origin countries' GDP per capita. For example, GDP per capita for countries like the United Arab Emirates (UAE), Lebanon and Dominica has a positive relationship with international migration. The GDP growth of these countries pushes more physician migrants into the U.S. The author also discussed factors associated with the international migration and suggested that the international migration phenomena is hard to overcome through public policy implementation and suggested variables like GDP per capita and proximity of destinations are the best predictor for international migration study.

Mayda (2010) studied labour migration in 14 OECD countries from 1980 to 1995. The outcome indicates that GDP in the host country has a significant relationship with labour migration. The overall findings suggested that the GDP performance in the host countries attracts more international migrants. Also the author opined that a lower level of GDP in the origin countries pushes these potential labours to move abroad and the GDP performance in the host countries attracts migrants from the origin countries to migrate. The author examined the determinants of labour migration inflows and the effects of migration on average income. The supplies of international migrants in certain countries seem to fluctuate due to the adjustment in migrant policies. On the other hand the GDP performance in the host countries has a positive relationship with the emigration rate. GDP plays an important role in determining international migration and this study will use the origin countries' real GDP to examine the influence of this variable on international migrants in Malaysia.

2.2.2 Unemployment Rate

Unemployment exists in almost every country in this world and is defined as 'whenever human beings are living without work and actively looking for a job'. Unemployment is one of the most important variables in the labour migration literature. If a country fails to provide or create job opportunities for the native workers, the unemployment rate will increase. Usually countries with a larger population and moderate economic performance have higher unemployment rates. Gerber (2006) conducted a study in Russia on how regional economic performance affects the Russian labour market which drives regional migration. The author modelled the determinants of annual net migration rates for 77 Russian regions from 1993 to 2002. The data set was collected from the Russian State Statistical Committee

to form a model. The result shows that unemployment dynamics has no independent effect on the Russian labour market.

France is one of the European countries which receive a large number of immigrants. Fromentin (2013) conducted research about the relationship between immigration, labour market and economic development in France from 1970 till 2008. The author mentioned that economic theories have no definite conclusion to forecast the immigration effects on the labour market and economic growth in France. The author studied the relationship between immigration, labour market and economic development through the econometric analysis which refers to general macroeconomics equilibrium with long and short run distinction. The information was gathered from various sources like the US Department of Labour, Bureau of Labour Statistic and OECD. The author specifically examined the existence of a causal relationship and impact of immigration on local labour market. The result shows that immigration and unemployment in France has an insignificant relationship for the long-term.

There is vast theoretical and empirical literature which discussed the migration phenomenon from the perspective of the host and source countries. Boubtane *et al.* (2013) studied labour migration from the host country perspective and examined the causality relationship between immigration, unemployment and economic growth for the OECD countries. The data was collected from the OECD Annual Labour Force Statistics ranging from 1980 to 2005 for 22 OECD countries. This study pays attention on the OECD countries because these countries are facing a rapid migration expansion. According to the author, there were roughly 82 million migrants in 1990 which then increased to 127 million in 2010 for the OECD countries. Overall, the result indicates that there is no causality relationship between immigration and

unemployment. However there is a negative causality between unemployment and immigration for a few OECD countries like Portugal, which then leads to an investigation of the causal relationship between immigration and host country conditions (unemployment and growth) using the panel Granger causality test.

European countries are well-known for migration studies and scholars studied the implication of unemployment in both the sending and receiving countries. The migration literature finds both positive and negative relationships between the unemployment rate and migration. Bauer and Zimmermann (1997) studied the determinant of earnings and unemployment issues among a few ethnics in Germany. The authors examined the behaviour of certain ethnic groups like Aussiedler from Poland and the former USSR in Germany. The result indicates that Aussiedler and the former USSR has a significant relationship with the unemployment rate in Germany.

Furthermore according to Marr and Siklos (1994), the unemployment rate has a significant relationship with immigration in Canada from 1960 to 1990. This study will examine the influence of the unemployment rate in the origin countries on international migrants' arrival in Malaysia.

2.2.3 Private Consumption

Potential migrants in the low and middle-income countries (though mostly from the low-income class) tend to migrate whenever household income decreases. Incaltarau and Maha (2012) studied the effect of migration on household consumption in Romania from 1990 to 2009. The independent variables are migrants, remittance, wages, credit, GDP, etc. The results indicated that job stratification in the host country gives impact on consumption and investment in the source country. Labours engaged with low-skilled or skilled job scope which indirectly impacts the host

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country's private consumption and investment. Over the time the tendency of migrant labours in the host country to invest in the origin country will increase. Furthermore migrants invest by building house and start small scale business in the origin country. Jennissen (2003) conducted research about the implication of economic indicator on net migration in Western Europe from 1960 to 1998. The study found that there is a positive relationship between income and consumption. Migration happens after a household income declines in the origin country, but this scenario in selected ASEAN and South Asian countries might generate different results. It might give different results because each country has owned different characteristics such as land size, population size, economic growth, etc.

The finding on the relationship between household consumption and migration is supported by Airola (2007) who then stated that household consumption in the origin country improves through the migration process. This process is called the 'development mechanism', whereby the migration process helps the native people to live a better life. The selected countries in this analysis like India, Indonesia, and the Philippines are well-known to have the highest rate of the population growth. A large size of the family or household definitely needs a stable income to survive and the income imbalance in the household leads to the consumption problem. The imbalance of household income level leads migrants to move abroad. Once migrants start to work in a host country, part of their salaries will be sent back to their native country and the households in the origin country will increase their consumption.

Semyonov (2005) concluded that the private consumption levels in the Philippines are based on the host countries distance. Males prefer to migrate to the Gulf Countries like Saudi Arabia which provides better earning opportunities compared to the female

migrants who would choose the nearest location such as Hong Kong despite its meagre earnings. This household theory was supported by Zhao (1999) who states that when families in China make a decision to migrate, it is probably due to poverty, whereby the family has no assets such as farmland. According to Donato (1993) international migration is important for a household consumption in the origin country and male gender plays an important role to improve household consumption.

Semyonov and Gorodzeisky (2004) studied employment and occupational changes in the Philippines from 1999 to 2000. The authors examined how economic gains or earnings of the Philippine migrants help improve household income through estimation by series of regression equations. The data was collected from the Survey of Household and Children of Overseas by the Population Institute of the University of the Philippines from 1999 to 2000. The analysis was conducted at two levels: individual level (gender, age, years of employment abroad, etc.) and household level (age, education, occupation of husband and wife, size of household, household income, standard of living, etc.). Countries like the Philippines are well-known as labour-exporting countries and the authors compared the household living standard with and without foreign workers. The results indicate that an increment in the household income has a positive relationship with the education level of husbands and wives, age, occupational status, household size and overseas employment.

Villarreal and Blanchard (2012) extended the research on how job characteristics and other factors lead labours to migrate. The authors found that the migration phenomena exist because of the household consideration to increase and improve the private consumption in origin country. On the other hand, the migration process occurs because of the instability of household income and the fact that there is a wage

difference between the sending and receiving countries. Lee and Rosemen (1999) stated that the heads of the households migrate in order to provide the basic needs to their families. However Kaluzny (1975) stated that the heads of the households migrate whenever their household incomes decrease. The effect of informality might be immediate on the household-level decision making process rather than an individual's own employment preference. Private consumption for the selected ten countries will be analysed in order to understand better about the international migration phenomena in Malaysia.

2.2.4 Migrant Stock

The United Nations Population Division defines migrant stock as a person born in a country other than that in which they reside while international migrants are equated with foreign-born. Migrant stock is very important for both sending and receiving states since through this figure policy makers will pay further attention to form new plans to overcome additional inflows and outflows of international migrants. According to Jennissen (2003) the effect of economic indicator on the net labour migration from 1960 to 1998 in Western Europe shows that migrant stock has a positive relationship on international migration.

Basically the movement of international migrants from the poorer countries to more developing and developed countries which pay a better salary scale and also foreign exchange plays an important role to attract labour migrant to move abroad. Meanwhile Lim and Morshed (2014) studied the influence of migrant stock consumption in the origin countries for 122 developing countries from 1990 to 2010. The authors formulated a hypothesis to test whether the increase in migrant stock leads to additional consumption and have used the fixed effects method because this

method captures further information of time-invariant of the characteristics of a country. The data are collected from the National Department of Economic and Social Affairs (2012) for three different years, i.e. mid of 1990, 2000 and 2010. The findings show that migrant stock in the origin countries has a positive relationship with consumption.

Artuc et al. (2015) studied the international migration phenomena on the OECD and non-OECD countries from 1990 to 2000. The authors analysed more than 100 countries and imputed the missing data through econometric tools. The migrant stocks data set is collected based on gender and education in 1990 and 2000. Since this is a global-related matter, the data set is obtained from various sources such from the Eurostat, Economic Commission for Latin America and the Caribbean (ECLAC), Gulf Cooperation Council (GCC), OECD DIOC-E. The result shows that geographical distance has a positive relationship with international migration. The outcome of this analysis also found that labour migrants with low-skills are more likely to move to the nearest destinations compared to high-skilled migrants.

The result also shows that migration to the non-OECD countries increases steadily compared to the OECD countries from 1990 to 2000. This literature gives an overall view on labour migration by compiling more complete worldwide data set of bilateral migrant stocks. The authors stated that the network theory helps the low-skilled workers obtain information on the job market of the destination countries from family members, friends, or agency. The network becomes the most important medium to exchange information among migrant stocks and it is found that network plays a very important role in the south-south migration.

2.2.5 Inflation Rate

Inflation is one important variable in macroeconomics. Inflation is defined as the increase in the overall price of goods and services over time. Whenever the overall price of goods and services increases, the purchasing power will decrease. Usually, monetary policies play a role to control the inflation plights in a country. The central bank uses those monetary policies to control the economic performance in order to avoid persistent inflation. Arnold and Shah (1984) studied the migration issue in the Middle East countries from 1975 to 1981. Their main objective was to estimate the number of migrants and consequence of economic and non-economic on Middle East countries. Households from Middle East countries receive money from the international migrants who work in the host countries. The authors concluded that the households in the origin countries spend money on products that leads to inflation. They also highlighted the difficulties in collecting the migrant data because most of the labour-importing countries do not reveal the exact migrant inflow in order to avoid political and commercial issues.

International migration happens because of wage differences between origin and destination countries. If the inflation rate gets higher in the origin countries, the labour expects the real value of wage in origin country to decline. The potential migrants choose to travel overseas with the hope that the income in host country is better. Cioran (2014) studied the causal link among the inflation rate, interest rate and unemployment rate in Romania and the European Union from 1997 to 2013. The author found that the Romanian interest rate may encounter unexpected changes. The author formed a simple linear regression model and accessed data from the Romanian National Bank, National Institute for Statistics and Eurostat. There are three important

variables in this literature such as inflation rate, unemployment rate and interest rate. The author stated that the interest rate is an effective tool for the central banks to handle inflation plights.

Massey and Espinosa (1997) studied international migration between Mexico and the United States from 1987 to 1992. The main objective of the study is to find the variables that could explain migration. These authors used three theories, i.e. neoclassical economics, social capital theory and the new economics of migration. The result shows that the macroeconomic variables in Mexico are not strong compared to those in the U.S. because the wage in the host country is considerably higher. The average wage in the U.S. is 14 times higher than that in Mexico. One of the most significant variables in this study is the inflation rate, as the inflation rate in Mexico is high. The authors also used 41 variables from the aspects of individual, household, community and macroeconomic. Historically, West Mexico had sent the majority of the migrants to the U.S., with the data covering for 25 Mexican communities.

2.2.6   Interest Rate

The interest rate is a yearly price charged by the lenders to the borrowers. Usually financial institutions or lenders impose an interest on the borrowers based on the sum of monetary loans and mortgages that was taken. Hristov *et al*. (2014) studied the growth of retail bank interest in Europe from 2003 to 2011. The authors examined structural changes and interest rate in Europe. The study found that there is a significant relationship between structural changes and interest rate spread in Europe. It is said that financial issues have caused the local banks in Europe to tighten the

collateral requirements. When a bank makes a decision to tighten the minimum requirement, banks in Europe would face monetary volatility

In addition, Hristov *et al*. concluded that the interest rate in a country must be balanced in order to avoid unwanted economics consequences. The authors used the vector autoregressive (VAR) models to examine how the European banks alter retail rates if banks encounter financial crisis. For example, if the interest rate in a country is high, it might be affect business plans. Besides that, the interest rate growth during the financial crisis because of macroeconomic is facing negative shock and value changes on properties. Whenever macroeconomic is facing negative shock it increases retail rates (banks). Each time the retail rate increases, the banks will increase the possible risk from private borrowers by reducing household deposit demand. The interest rate spreads if there is any fundamental change in properties.

Were and Wambua (2014) studied the determinants of interest rate spread in Kenya's banking sector from 2002 to 2011. In Kenya sectors like financial institutions become the main authorities controlling the economic growth for 44.4 million people. The result shows that the variable (bank specific) give more significant results compared to other variables (macroeconomics) in order to determine the interest rate spreads in Kenya. The authors have opined that Sub Saharan African will encounter problems if the interest rate is high. Overall, the finding shows that GDP and inflation have an insignificant relationship to explain the interest rate growth. There is a positive relationship between the size of a financial institution and interest rate spreads in Kenya. The analysis takes variable from bank-specific and the selected variables for this study like bank size, credit risk (non-performing loan to total loan) and return on average assets and operating cost. The bigger financial institutions have highly

contributed to the interest rate spread (bank size defines total assets). Whenever the economic activities become more effective the demand for loan will increase (high lending rates).

Cendejas *et al.* (2014) examined the correlation between interest rate, monetary aggregates, production and price (consumer goods, financial assets and real estate). The result shows that short-term nominal interest rate and monetary aggregate shared a common cyclical factor. Hoffmann and Loffler (2014) studied the relationship between the interest rate policy with international funding and reserve currencies on advanced economies (U.S. and Europe). The finding indicates that sometimes emerging markets are not able to practise low interest rate policy. The authors focused on the overall policy response by the emerging market of central banks and the data covered for 28 emerging markets from 1998 to 2012.

2.2.7　Total Population

In the late 18th century (1798), Thomas Malthus developed a theory called Malthusian theory. Basically this Malthusian theory focuses on population growth where he describes as to what will happen if a number of population increases tremendously compared to the food supply. According to this theory whenever a country fails to control the population growth rate, the particular country might face problems from the development perspective. This theory could explain the rapid growth of population in various countries like Indonesia, India, Bangladesh, Philippines and Vietnam that causes numerous issues like poverty, unemployment and slow economic growth.

Liu and Yamauchi (2014) studied the relationship between population and labour allocation, rural household consumption and income in Indonesia from 2000 to 2007.

The analysis found that a large population growth rate in Indonesia gives pressure on land but the migration process helps the native workers to be not too dependent on lands. Besides that the authors stated that the migration process from rural to urban part of Indonesia is significantly high and predicted that the migration rate to urban areas will increase. Meanwhile the population growth rate and labour allocation in Indonesia is determined by human capital and land holders. The overall analysis conducted through panel data analysis to examine the relationship between dependent and independent variables. The data was gathered from the Indonesian Family Life Survey (IFLS), village censuses and online climate data.

Bere *et al.* (2014) studied the dynamics of economic growth and factors that influence the economic in Romania. The author analysed the relationship between economic growth and the independent variables like population, migration, the number of university students, unemployment and investment in R&D. These data were collected from seven cities in Romania from 1996 to 2010. The analysis yields several results. First of all, the migration variable does not indicate any positive relationship with economic growth for seven cities in Romania. Secondly, the population variable has a positive relationship with for seven cities in Romania. This result suggests that indicator like GDP is dependent on human capital as compared to other indicators such as technology, research and development. Also the author concluded that population growth is a good sign to improve economic growth. The author also stated that if a country has recorded high population, it does not mean that high population rate could bring economic growth.

Becker *et al.* (1999) examined the relationship between population and economic growth. Their analysis yields several results. Firstly, if the current population has been experiencing good life with good earnings, then the population growth rate will

increase. Secondly, an increase in the birth rate will lead to a slow progress in economic development. The overall of the discussion about population shows that too much population in a country might reduce the productivity through the diminishing marginal productivity. For example, farmland activities in the poorer countries are dependent on rudiment equipment and the highest birth rate will lead pressure on income of individuals.

Cadil *et al* (2014) examined the impacts of human capital on economic growth and unemployment from 2007 to 2011 in Spain. They suggested that population growth in a country does not necessarily help to promote economic performance of the country. Human capital must be executed economically to avoid major issues to arise such as the high unemployment rate and the imbalance in the labour market.

2.2.8 Human Development Index (HDI)

Kandemir (2012) studied a few determinants like income, education and health in order to find out which human development determinants plays an important role in the international migration flows. The data for this study was collected from the World Bank and the HDI data from the United Nations Development Program. The result shows that the migrants prefer to move abroad, especially to those countries with better HDI levels.

Quinn and Rubb (2005) found that years of education has a significant relationship with migration. The educated Mexican communities since 1987 till 1999 are more likely to migrate compare to the ones with lesser education level. Sicherman and Galor (1990), Kanaiaupuni (2000), and Schlottmann and Herzog (1981) agrees that human development from the perspective of education plays an important role in the migration process.

2.3   Migration Studies in Malaysia

Generally, the Malaysian government allows migration in order to reduce the problem of labour shortage which has been a recurring issue in Malaysia since the 1980s. In the 1960s, Malaysia started economic development projects such as the Malaysia Plans (MPs 1). The GDP performance moves steadily even though it faced a few economic crises such as the Asian Financial Crisis in 1997. In 1960, GDP was recorded at RM 2.44 billion and it has increased to RM 313.2 billion in 2013. The continuation of government intervention in economies leads to improvement.

Syed Abdul Razak (2014) studied the Indonesian migrants in Sabah, Malaysia and paper discuss in migrants preference into the 3D sectors like plantation and agriculture. Indonesian migrants prefer Malaysia as a main destination because Malaysian local sectors like plantation and construction offer job opportunities and good pay. Because of this the total Indonesian migrants in Malaysia during the 1980s were about 55.2 million and increased drastically to 116.5 million in 2010. The numbers of international migrants increase due to the economic transformation from rubber to large scale of oil palm plantations. Where oil palm plantation requires high number of low-skilled labour and only foreigner workers are interested in this sector.

Meanwhile, the construction sectors in Malaysia revealed that multi-national companies are more willing to hire foreign workers as compared to the natives. Approximately 82% of these employers would like to hire foreign labours for long-term employment to maintain their reputation. Besides that international migration studies in Malaysia also discussed the negative impact of foreign workers whereby the local companies highly depend on foreign labours causing the increase of the illegal migrants. Syed Abdul Razak (2014) stated that foreign labour productivity brings

significant relationship between number of labour migrants and outputs in the manufacturing sectors. The overall of the finding shows that the Malaysian government is dependent on these international migrants and it may take a long period to reduce the dependency on international migrants.

CHAPTER 3

METHODOLOGY

3.1 Data

The data set on the dependent and independent variables was collected from online databases. The international organizations such as the World Bank, International Monetary Fund (IMF) and United Nations Development Program (UNDP) provide the online data from 1960 to 2010.

3.2 Dependent Variable

The dependent variable in this study is international migrants in Malaysia from 10 countries (namely, Bangladesh, Cambodia, India, Indonesia, Myanmar, Nepal, the Philippines, Sri Lanka, Thailand and Vietnam) from 1960 to 2010. The data on international migrants are taken from the World Bank online database (global bilateral migration database).

3.3 Independent Variables

There are four important independent variables in this study: real GDP, unemployment rate, private consumption and migrant stock. All these variables are referred to the origin countries. Real GDP is (nominal) GDP that has been adjusted for inflation. The data on real GDP are obtained from the World Bank. The unemployment rate is measured as a percentage of divide total number of unemployed persons by all individuals in the labour market. The data on the unemployment rate are collected from the ILO database. Private consumption is defined as the value of all goods and services and also includes durable products (vehicles, electric appliance etc.) that household purchase in a country (World Bank, 2015). The data on private

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consumption are collected from the World Bank. Migrant stock is the total number of residents of a given country that are non-citizens. The data on migrant stock are obtained from the World Bank.

3.4   Control Variables

In this study a few control variables will be employed: the inflation rate, real interest rate, total population and HDI. The inflation rate is the annual percentage change in the consumer price index which, in turn, is defined as the cost of a basket of selected goods and services purchased by consumers; the data are obtained from the IMF. The real interest rate is the lending rate adjusted for inflation as calculated by the GDP deflator; the data are collected from the World Bank. Total population is the overall residents in a country (origin country) regardless of legal status or citizenship at the time of the census; the data are obtained from the World Bank. HDI is the index of average performance in health, education and wealth in a given country; the data are obtained from the UNDP.

Table 3.1 shows the selected variables for this study along with their operationalization and sources.

Table 3.1
Dependent and Independent variables

Variable	Operationalization	Source
International Migrants	Global bilateral migration (foreign born)	The World Bank
Real GDP	GDP deflator	The World Bank
Unemployment rate	Total unemployment as percentage of the total labour force	International Labour Organization (ILO)
Private consumption	US$ (Data are in current U.S dollars)	The World Bank

Migrant stock	Foreign-born population per 1000 at the beginning of the year	The World Bank
Inflation rate	Inflation (consumer prices annual %)	International Monetary Fund (IMF)
Real interest rate	Lending interest rate adjusted for inflation as measured by GDP deflator	The World Bank
Total population	All residents in origin country (values in midyear estimates)	The World Bank
Human Development Index (HDI)	Measure of average achievement (health, wealth and education)	United Nations Population Division

3.5   Model Specification

The type of data employed in this study is panel, which is a combination of cross-sectional and time series data. Given this characteristic of the data, a panel data regression model is suitable. It turns out that there are a few types of panel data regression model, of which the simplest one is the linear panel data model.

3.5.1 The Linear Panel Data Model

A panel data set is formulated from a sample that contains N cross-sectional units over T period (Asteriou and Hall, 2006). If i is the index for the cross-sectional units (such as firms or countries), then $i = 1, 2, 3, 4, ..., N$. Similarly, if t is the index for the period or time series units (such as weeks or years), then $t = 1, 2, 3, 4, ..., T$. Consider a simple linear panel data model with one explanatory variable:

$$Y_{it} = \alpha_i + \beta X_{it} + u_{it} \qquad (3.0)$$

where:

Y_{it} = dependent variable, i = country and t = time

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α_i $= (i = 1....n)$ unknown intercept for each country

X_{it} $=$ represent one independent variable

β $=$ coefficient for the independent variable

u_{it} $=$ the error term

It should be noted that α_i differs across countries in the sample. The β coefficient should also vary across different countries, but this requires a separate analysis for each one of the N cross-sectional units and the pooling assumption is the basis of panel data estimation such as fixed effects and random effects.

If the sample set includes of a constant T for all cross-sectional units or full set of required data for both countries and across time, then this data set called balanced. Meanwhile, if observations are missing for certain time periods of some of the cross-sectional units, then the panel is called imbalance.

3.5.2 Fixed Effects Model

By using fixed effects, one may assume that something within the individual may impact the dependent variable and need to control it (the rationale behind the assumption of the correlation between entity's error term and independent variables). So that fixed effects model removes the effect of those time-invariant characteristic and then fixed effects model able to measure the net effect of the independent variables on the dependent variable. Another important assumption of fixed effect is those time-invariant characteristic is unique to the individual and should not be correlated with other individual characteristic. Each entity's error term and the constant should not be correlated with others.

Fixed Effects Model

$$y_{it} = \alpha_i + \beta_1 x_{1it} + \beta_2 x_{2it} + ... + \beta_k x_{kit} + \varepsilon_{it} \qquad (3.1)$$

where:

y_{it} = dependent variable, i = country and t = time

α_i = (i = 1....n) unknown intercept for each country

x_{it} = represent one independent variable

β = coefficient for the independent variable

ε_{it} = the error term

3.5.3 Random Effects Model

The random effect model is the variation across entities is assumed to be random and uncorrelated with the independent variables in the model. The advantage of random effect model is, it may include time invariant variables. This model assumes that the entity's error term is not correlated with the predictors which allows for time-variant to play a role as explanatory variables. After that the random effects modelling accept the country-specific intercepts as part of the error term and consider them as random draws from a larger population. This model corrects for unobserved heterogeneity by specifying the bias and modelling it as part of a complex error structure.

The difference between the fixed effects and the random effects method is that the latter handles the constant for each section not as fixed but as random parameters. Hence the variability of the constant for each section comes from

$$\alpha_0 = \alpha + v_i \qquad (3.2)$$

where v_i is a zero mean standard random variable. The random effects model therefore takes the following form:

Random Effects Model

$$y_{it} = (\alpha + v_i) + \beta_1 x_{1it} + \beta_2 x_{2it} + ... + \beta_k x_{kit} + \varepsilon_{it} \qquad (3.3)$$

$$y_{it} = \alpha + \beta_1 x_{1it} + \beta_2 x_{2it} + ... + \beta_k x_{kit} + (v_i + \varepsilon_{it}) \qquad (3.4)$$

3.5.4 The Hausman Test

In order to conclude which model is the best model or fit the study a test as the Hausman test will be conducted. The Hausman test is functioning to identify which is the best model through probability value of Chi Square.

3.5.5 VCE (robust)

Estimated model will be analyzed for other diagnostic test such as serial correlation and the existence of heteroscedasticity will be solved by estimating the model with robust variance.
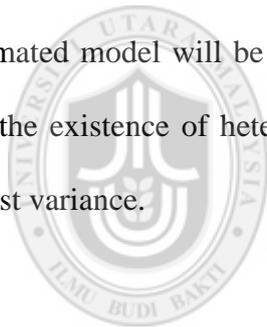
CHAPTER 4

DISCUSSION OF RESULTS

4.1   Introduction

The primary objective of this study is to examine the influence of economic indicators on international migrants in Malaysia from time 1960 to 2010 with 10 years interval. First of all the analysis part starts with a description of fixed effects and random effect models. Secondly the data used in this migrant study and the following section explains the regression result. The dependent variable for this study is international migrants and the independent variables are real GDP, unemployment rate, private consumption and migrant stock. Besides that this analytical study includes a few other control variables such as real interest rates, inflation rate, total population and human development index (HDI). These economic indicators have already been tested in previous studies across European countries through labour migration theories.

The analysis of this study consists of ten countries which are the major labour exporters to Malaysia. According to the bilateral migration statistic, there were a total of 18,789 international migrants in Malaysia in 1960 (World Bank, 2015). The figure rose to 244,812 in 1970. As of 2009, the total number of migrants from these 10 countries was 2.1 million (Ministry of Human Resource, 2009). International migrants in Malaysia are coming from numerous countries but this study focuses only on six ASEAN countries and four South Asia countries, namely, Bangladesh, Cambodia, India, Indonesia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand and Vietnam. The data were collected from various well established organizations such as the International Monetary Fund (IMF), World Bank and other organizations.

4.2 Results

Table 4.1 presents the estimation results from random effects and fixed effects models. Model 1 examines all the variables in this migration study and Model 2 examines variables that eliminate multicollinearity problem (Model 1 and 2 is a linear model). Meanwhile Model 3 is a log linear model. In each block, there are 2 columns (REM / FEM) reporting the estimated values of the coefficients as well as the standard errors in brackets. Besides that, the table is capturing the level of significance 1% (***), 5% (**) and 10% (*) other information as well (t-stat, f-stat, etc).

The first model has given three significant outcomes. First of all the unemployment rates and HDI have positive relationship with international migrants. Meanwhile migrant stock has shown negative relationship with international migrants. Model 1 examines economic indicators such as real GDP, unemployment rate, private consumption, migrant stock, inflation rates, interest rates, total population and human development index (HDI) with net international migrants.

Model 1 examines the role of economic determinants from the 10 origin countries that push local people to become international migrants in Malaysia from the years 1960 to 2010. The unemployment rate has a positive relationship with international migrants. Positive relationship between unemployment rate and international migrants explain that whenever the unemployment rates increases, it causes the level of international migrants to become higher. The significant relationship between the unemployment rate and net international migrants is attained from the fixed effects model. This outcome supports the Keynesian economic theory. According to Keynesian theory the international migration process reduce the unemployment issues.

Fromentin (2013) studied international migration and found a negative relationship between the unemployment rate and immigration in France as a host country from 1970 to 2008. Jennissen (2003) studied international migration and concluded that unemployment has a negative relationship with net international migration in former labour exporting countries (Austria, Denmark, France, Sweden and the Netherlands). Neighbourhood countries of Malaysia have high rates of unemployment. For an example, the unemployment rates in Indonesia and the Philippines were very high since 1990 and other countries with a range of 1- 4.5%. Rationally, the increment of unemployment rate in the neighbourhood countries pushes job seekers to arrive in Malaysia consistently.

Migrant stock has a negative relationship with international migrants. The increases of migrant stock are associated with lower levels of net international migrants. This result is obtained from both the random and fixed effects models. However, this finding can be explained by the network theory. According to this theory, the potential migrants will be helped by existing migrants in the destination country. Migrants in the destination country usually provide information regarding current job market, find suitable accommodation and finance the migration process. In this case, the majority of the countries which are formerly known as poorer countries and migrants basically are coming from rural areas. So the potential migrants may do not receive sufficient information and financial aid from existing migrants at abroad to continue the migration process.

The potential migrants do not move from their origin country because of insufficient information and imbalance financial services. Jennissen (2003) studied migration issues and mentioned migrant stock has a negative relationship with net international migration in Western European from 1960 to 1998. Furthermore Artuc *et al* (2015)

have supported regard migrant stock that natives with low-skilled preferred nearest destination countries if they could receive information (job market) by family members or friends from host countries. Human development index (HDI) has indicated a positive relationship with international migrants. The additional increases of HDI are associated with a higher level of net international migrants. The positive relationship is obtained from the fixed effects models. The outcome for this significant relationship supports the findings of Kandemir (2012) where the HDI level (income, education and health) in the origin country affects the migrant's decision. Whenever migrants have good health and are semi-skilled in their origin country, the tendency to migrate to other countries is high.

As the conclusion for Model 1 the real GDP and total population are positively associated with net international migration in Malaysia from 1960 to 2010. However HDI is negatively associated with net international migration in Malaysia. On the other hand, the effect of variables like real GDP, total population and HDI are not robust across modelling techniques. Furthermore, variables like private consumption, inflation rate and interest rate are not showing any significant relationship with net international migration. The fixed effect model fits Model 1 and three significant results to explain this study. The number of observations in this model is limited and there is a previous study on international migration by Sanderson (2010) with a limited number of observations and produces four models.

Table 4.1 :

Panel regression of economic indicators on international migrants in Malaysia

	Model 1:		Model 2:		Model 3:	
	FEM	REM	FEM	REM	FEM	REM
Real GDP	487.5092	2432.922***	952.7565	1072.311*		
	(870.8873)	(888.0181)	(687.2942)	(575.3979)		
Unemployment Rate	34547.87**	15866.69				
	(11173.19)	(14743.12)				
Private Consumption	-1.52e-07	-1.41e-07	-1.86e-08	-1.36e-08		
	(6.61e-07)	(1.04e-07)	(6.82e-08)	(6.14e-08)		
Migrant Stock	-.4253407**	-.3403498***				
	(.1502049)	(.0890924)				
Inflation Rate	2062.001	-1247.332				
	(4984.787)	(8925.837)				
Real Interest Rate	-9007.834	-4708.085	-7057.691*	-6644.143*		
	(5691.423)	(8567.27)	(4400.408)	(4006.06)		
Total Population	-.003371	.0017337***				
	(.0031732)	(.0004689)				
(HDI)	2251102*	-1346956**	169042	72618.42		
	(1142204)	(693940.8)	(660331.8)	(516073.8)		
Constant	-325857.5	686004*	-6747.395	38037.57	-62.70284	-25.90366*
	(424289.9)	(372691.3)	(292918.3)	(239688.8)	(14.62549)	(5.72668)
Private Consumption (ln)					.492706 **	.7770538***
					(.2286391)	(.1715132)
Migrant Stock (ln)					.1411347	-.0857513
					(.3500442)	(.2919396)
Total Population (ln)					3.263024***	.9916332**
					(1.036852)	(.4720927)
F-Stat	5.49		4.15		32.76	
Wald-Chi		23.37		19.10		81.98
Hausman Test	0.0163			0.9828		0.7744
N	25/66	25/66	32/66	32/66	54/66	54/66

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The second model is justifying that private consumption and HDI play an important role in migration phenomena across the selected Asian countries. The second model has examined economic indicators like private consumption and real GDP. In addition the second model has tested control variables such as HDI and real interest rate. The overall objective of this model to identify whether variables like real GDP, private consumption, real interest rate and HDI could explain the migration process in Malaysia from 1960s till 2010.

The second model shows that real interest rate has a negative relationship with international migrants and the real GDP has a positive relationship with international migrants in Malaysia from 1960 to 2010. The second model has examined few economic indicators like real GDP, real interest rate, private consumption and HDI. So far the second model has gave two outcomes to explain in detail regard the role of economic indicators from origin countries that push migrants to Malaysia

Real interest rates have explained that there is a negative relationship with net international migration. Raises of real interest rates are associated with lower levels of international migrants. The negative relationship between interest rate and net international migrants get across random and fixed effects models. Basically an increase in real interest rate for the long term will cause the savings to decline. A higher level of real interest rate is an advantage for savers and a disadvantage for borrowers. For an example the real cost of borrowing money from banks or any financial institution is 2.5%. The inflation in a particular country, however, is expected to be 4% then the nominal interest rate on the loan will be 6.5%. Later, if the inflation rate rises to 5%, then the creditor transfers purchasing power to the borrower.

A migrant from lower level of economic status may be willing to borrow from a local financial institution to finance the migration process, but the higher level of real interest rates will discourage the idea temporarily to shift overseas. The real GDP has a positive relationship with international migrants. Raises in real GDP are associated with higher levels of international migrants. The positive relationship between real GDP and international migrants receive from random effects models. The positive relationship between real GDP and international migration supports the previous studies. Sanderson and Kentor (2009) summarized the level of GDP per capita increases and the level of emigration also increase. Compared to Ontiveros and Verardi (2012) studied migration and found that an additional number of projects regarding the bilateral development which help to improve the GDP performance about 1% and this GDP increment helps to boost local labour to be productive (semi-skilled) in smoothing the migration process.

There are countries channelling some aid to reform some rules and regulations and also form government and non-government organizations to guide the potential migrants. The Philippines is known as a major labour exporting country across Asia and they provide support throughout the government intervention to lead their migrants. The Philippines government formed Philippines Overseas Employment Agency (POEA), which legalizes the licensing and monitoring of employment agencies and The Overseas Workers Welfare Administration (OWWA) covers welfare and protection issues. Philippines Overseas Labour Office (POLO) maintains 45 labour offices in 32 countries of destination to offer counselling, legal assistance, conciliation and liaison services. After that, the effect of private consumption and HDI are not showing any significant relationship with net international migration. Finally Model 2 concludes that random

effect models fit the analysis. There are two significant results from the perspective of interest rate and real GDP to understand the international migrants' phenomena in Malaysia from 1960 to 2010.

The third model has transformed variables like international migrants, private consumption, total population and migrant stock by taking natural logarithm. The main reason the third model has logged if the residuals aren't normally distributed then by taking the logarithm of a skewed variable may improve the fit by altering the scale and making the mentioned variables more "normally" distributed.

The third model indicates that private consumption and total population have positive relationship with international migrants. The model 3 has examined international migrants, private consumption, total population and migrant stock with the natural logarithm. The outcome of model 3 enables the generated coefficients to explain as the elasticity of the chances or possibility to migrate to Malaysia due to economic determinants.

The private consumption has indicated positive relationship with international migrants. Higher private consumption in the origin country raises the probability to migrate. The positive relationship between private consumption and net international migrant is obtained across random and fixed effects models. According to NELM theory, international migration studies must expand the research in broader social entities such as household. Household income decides the level of private consumption; to survive, each family must consume basic necessities. The problem occurs whenever the origin country

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residents do not manage to find an income and additional income to support their current private consumption level.

Moreover the household encounter increase in private consumption if there is an additional family member (newly married couples and new-born babies). This is considered as one of the reasons as an increase in private consumption which leads local residents to migrate to Malaysia. This finding support a study by Prada (2013) the rank of household consumption increase in the origin country detected more emigrants. The control variable like total population has proved positive relationship with international migrants. Increments of total population are associated with higher levels of international migration process in Malaysia. The positive relationship between total population and international migrants find across random and fixed effects models'.

The summary of this finding an increase of the number of the total population will lead to additional migration from source country to Malaysia. According Liu and Yamauchi (2014) have mentioned that if population rate increase various problem will arise such as unemployment and poverty. These problems will be solved through migration process. Last but not least, the effect of migrant stock in this model is not showing any significant relationship with net international migration. In the end, Model 3 brings to a close as the random effect models fit the analysis. The Model 3 gives two significant results as of the standpoint of private consumption and total population to understand better of economic indicator to explain international migrants in Malaysia.

4.3   Discussion

Generally, the study indicates economic indicators have an important role in international migrants in Malaysia. The first model finds unemployment rate has a positive relationship with international migrants. Those selected 10 countries in this analysis have highest unemployment rate. If the percentage of unemployment rate increases across Malaysian neighbourhood countries, the probability for Malaysia being in a middle-income trap will be extended. The continuity higher unemployment rate will increase international migrants in Malaysian.   The result helps to understand better how unemployment rate influences international migrants in Malaysia. The influence of real GDP on international migrants is statistically significant. Even though there is positive relationship between real GDP and international migrants, it is relatively small in scale. For an example the model 2 shows that one per cent increase in the real GDP leads the potential natives from ten countries approximately 1072 migrants to reach Malaysia from 1960 to 2010.

This finding support Sanderson and Kentor (2009) GDP has a significant relationship with emigration. The private consumption in this study positively associated with international migrants in Malaysia. Whenever household starts consume most basic necessities, the probability head of household migrate is high. The level of private consumption in one country does play a role as said by Donato (1993) head of household's contribution in private consumption is very important. The second control variable such total population in this study positively associated with international migrants in Malaysia. The further research without data limitation, the result might give strongest explanation about international migrants in Malaysia.

CHAPTER 5

CONCLUSION AND POLICY IMPLICATION

5.1   Conclusion

Generally in this study a compiled panel data regarding the influence of economic indicators on international migrants' arrival in Malaysia since 1960. Basically, this study has been examining the influence of economic indicators such real GDP, unemployment rate, migrant stock and private consumption with other control variables. According to the empirical results, Model 1 indicates unemployment rate and HDI have a positive relationship with international migrants in Malaysia. The migrant stock has a negative relationship on international migrants. There is evidence now, international migrants in Malaysia are coming due to the higher unemployment rate in origin countries and HDI (health, education, wealth) too brings more migrants to arrive in Malaysia as migrants have good health conditions.

After that, Model 2 concluded real GDP has a positive relationship on international migrants in Malaysia. Meanwhile Model 3 (log linear) states private consumption and total population positively associated with international migrants. Model 3 clearly mentions an increase in private consumption and the number of total population across Malaysian neighbourhood countries leads to migration phenomenon. Overall of the finding indicates, Malaysia receives quite number of international migrants from these 10 countries from 1960 to 2010. International migrants in Malaysia are coming here because of economic determinants and now Malaysia has more than 2.1 million of international migrants. If the selected indicators keep giving major role in migration, then Malaysia

will keep receive more and more international migrants from these 10 countries. The probabilities are in the middle-income country and will take additional time to become a high-income country.

5.2   Policy Implementation

This study indicates there is a sign of economic indicators leads to international migration issues in Malaysia since 1960. The continuation of international migrant inflow in Malaysia will increase productivity of local sectors, but chances in this middle-income country to achieve high-income country definitely will take additional time. Moreover, increasing international migrants (high-skilled) in local sectors with high technologies will help Malaysia to achieve high-income country and Malaysia will compete among other developed countries. This study examines the influence of economic indicators on international migrants in Malaysia and the following is the policy suggestion of this study.

i.   The study found the unemployment rate is very important to explain the international migrants in Malaysia. The Malaysian government must consider the number of international migrant's arrival in Malaysia. The activity of allowing low-skilled international migrants in large scale, especially in manufacturing must be considered.

ii.   The positive relationship between real GDP and international migrants, says the number of migrants will be added in small number if neighbourhood countries real GDP increase. Furthermore increase the number of job agency in Malaysia, encourage the potential international migrants in Malaysia. The

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job agencies are actively approaching small medium enterprises (SMEs) in order to hire international migrants. The government may set quota system or limiting the agency's agreement to bring international migrants.

5.3   Limitation of the study

There is a limitation of this study. First of all this international migration study occupied only 10 countries and with 10 years interval from 1960 to 2010. The 10 year interval with 10 countries is not sufficient for the research in order to observe the overall effect of economic determinants on international migrants in Malaysia. The result will be much better if the study able to expand for a longer time period. Secondly, the data availability for unemployment rate, inflation rate and interest rate a limited. These data sets available 1980 onwards, it does not represent years for 1960 and 1970.
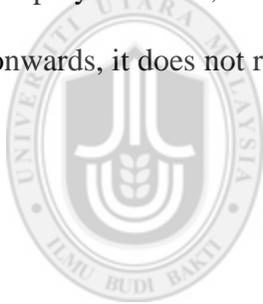
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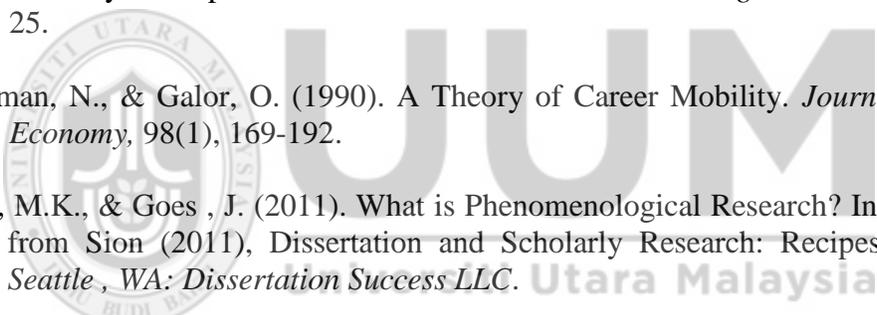
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